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## Clinical and scientific evidence for the relevance of pro-active and phase-adapted skin care in Atopic Dermatitis

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Atopic dermatitis is a chronic, relapsing inflammatory skin disease characterized by skin barrier defects and the burden of itch. In order to increase patients' quality of life, emollient-based skin care is the basis of all treatments. We provide clinical and scientific evidence that tailored skin care adapted to the phases of atopic dermatitis is able to break the itch-scratch cycle in a targeted way. To investigate anti-pruritic pathways and mechanisms in atopic skin, we developed an innervated atopic 3-dimensional skin model allowing the investigation of the cross-talk between sensory nerve endings and atopic skin cells (Roggenkamp et al, JID 2013). In this model, atopic keratinocytes released elevated level of nerve growth factor (NGF) resulting in nerve fiber sprouting, enhanced release of the neuropeptide calcitonin-gene-related peptide (CGRP) and epidermal thickening. Consequently, the atopic innervated skin model resembled the atopic phenotype *in vivo* with hyperinnervation and epidermal hyperplasia. Further studies implied that the activation of the cold receptor TRPM8 can modulate NGF expression in atopic skin cells. The menthol-derivative and TRPM8 activator Menthoxypropanediol (MPD) reduced NGF expression and consequently hyperinnervation in atopic skin models (Roggenkamp. et al, EXP DERM 2016). As hyperinnervation has been associated with itch in atopic dermatitis, these results mechanistically indicate anti-itch efficacy of MPD *in vitro*. A proof of concept study (randomized, double blind, vehicle controlled) demonstrated that the treatment with a cooling compound including TRPM8 agonist MPD reduces chronic pruritus in xerotic skin (Ständer et al, JEADV 2016). These results were confirmed in a investigator-blinded study to assess the efficacy of a water-in-oil emulsion containing anti-inflammatory licochalcone A, anti-bacterial 1,2-Decanediol, anti-itch active MPD demonstrating a reduction in the lesional severity and *S.aureus* colonization as well as improvement of the barrier function parameters in volunteers with mild to moderately severe AD (Angelova-Fischer et al., JEADV 2014). These results emphasize that application of clinical evidence-based pro-active skin care significantly improves atopic dermatitis patient's quality of life.

### Biography

Gitta Neufang has completed her PhD from the University of Hannover in cooperation with the German Cancer Research Center in Heidelberg on mechanisms of non-melanoma skin cancer. After two years as a post doctoral research fellow at the University of Münster, she joined the research department of Beiersdorf AG, Hamburg focussing on sensitive skin and skin diseases with a strong interest in the neurophysiology of the skin. Since 2014 Gitta Neufang is the global Head of Medical Management.

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